

REMARKS

This paper is filed with a request for continued examination in order to add new claims 21-40 to the application and to correct obvious errors in claim 3. With this paper, the application includes claims 1-40.

New claims 21-24, depending from claim 1 (directly or indirectly) and so believed allowable over the art for at least the same reasons as claim 1, recite characteristics of the payload symbols (ACK and NACK) and the indication symbols (preamble symbol and/ or postamble symbol). Support is in the paragraph beginning at page 11, line 26.

New independent claim 25 recites only steps already recited in claim 1, and, in addition, recites that the signal-transmitting entity first receives a packet from the signal-receiving entity, which step is shown e.g. in Fig. 1 (Node B sending packets to UE). As a point of novelty, claim 25, like claim 1, recites a step in which in response to a packet from a feedback-signal-receiving entity, a feedback-signal-transmitting entity signals in a current time interval an indication symbol providing preamble or postamble signalling in order to indicate whether a payload message is being or was transmitted in a predefined positive or negative offset of one or more time intervals from the current time interval. In contrast, the prior art of record, and in particular Odenwalder, teaches (see e.g. paragraph 29 of Odenwalder) the use of a preamble symbol--on a special preamble channel--to forewarn a receiving entity that it is about to receive a "subpacket," i.e. a unit of data, as opposed to feedback (see paragraph 24, explaining that "subpacket" is just a term for a data traffic payload, and is intended to be sent possibly several times and soft-combined at the receiver). Thus, Odenwalder does not teach signalling in respect to a payload message conveying feedback information, as recited in new claim 25.

New claims 26-27 each depend from new claim 25, and so are believed distinguished over the prior art in at least the same ways as claim 25.

New claim 28 is an independent claim to a feedback-signal-transmitting entity and recites apparatus limitations corresponding to the steps of method claim 25, and so new claim 28 is believed distinguished over the prior art for the same reasons as claim 25.

New claims 29-34 depend from new claim 28, and so are believed distinguished over the prior art in at least the same ways as claim 28.

New claim 35 is an independent method claim based on the specification at page 19, in the paragraph beginning at line 1, which explains that the invention provides, via a signalling channel, reliable narrow-band signaling for various applications where the signaling can be discontinuous (DTX mode); more particularly, the invention provides for a signal-transmitting entity to transmit signaling messages in predefined time intervals, but when there is no signaling message to send in a time interval, to transmit sometimes preamble symbols and sometimes postamble symbols, whereas in the prior art nothing is transmitted in the time interval. The signalling of preamble and postamble symbols according to the invention helps the recipient of the signaling messages to identify more reliably any transition between active signaling--when a signaling message is transmitted--and DTX mode, i.e. when, according to the invention, preamble or postamble symbols are sent, but when, according to the prior art, nothing is transmitted. Specifically, new claim 35 recites a step of transmitting one or more indication symbols during a time interval when payload message symbols providing signaling information are not being transmitted, each of the indication symbols differing from each of various possible payload symbols. It is therefore inherent that the indication symbols communicate at least that payload

message symbols are not being communicated in the current time interval (and in fact communicate even more information with respect to transmissions of the payload message symbols, as set out in the specification at e.g. page 9, line 25, in case of the application of the invention to HARQ signaling). In contrast, Odenwalder, as noted above, teaches the use of a preamble symbol to forewarn a receiving entity that it is about to receive a "subpacket," i.e. a unit of data, as opposed to signaling information. In other words, where Oldenwalder teaches sending signaling information (preamble signals) to forewarn about the transmission of data, and so teaches sending signaling information about data transmissions, claim 35 recites sending signaling information (preamble and/or postamble signals) when not sending other signalling information (payload messages), and therefore recites sending signaling information about signaling information.

New claim 36 depends from claim 35 and includes the further limitation that the indication symbols are transmitted on the same communication channel as the payload symbols (which limitation is supported by the specification at e.g. page 11, ll. 1-3). Oldenwalder teaches that when a transmitter is about to transmit a "subpacket" (unit of data) on a first channel, it uses a separate preamble channel to alert the receiver.

New claim 37 depends from claim 35 and includes the further limitation that in the first predetermined procedure recited in claim 35, the payload symbols are selected from a predetermined small set of different possible payload symbols, which limitation is supported by e.g. page 11, lines 21-25, which show only an ACK and a NACK symbol as the possible payload symbols.

New claim 38 depends from claim 35, and so is believed allowable for at least the same reasons as claim 35. Claim 38 includes the further limitation that at least one of the payload message symbols (the ACK symbol in the embodiments described in the

application) is further separated from the indication symbols, in a code distance sense, than any of the other payload message symbols. Support is at page 12, line 2.

New claim 39 is a signal-transmitting entity operative (i.e. configured to operate) according to the method of claim 35, and so is believed allowable for at least the same reasons as claim 35.

New claim 40 is to a telecommunication system including a signaling entity as in claim 39, and so is believed allowable for at least the same reasons as claim 39. Claim 40 also recites that the telecommunication system includes a signal-receiving entity that uses the indication symbols provided by the signaling entity in order to determine the signaling state of the signaling entity (i.e. whether the signaling entity is in an active signaling mode and so e.g. transmitting ACK or NACK symbols, or is in a DTX mode, which in the prior art would mean no transmission, but according to the invention means that indication symbols are being transmitted). Support is at e.g. page 8, ll. 15-19).

Conclusion


It is believed that all of the claims of the application are in condition for allowance and their passage to issue is earnestly solicited.

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WARE, FRESSOLA, VAN DER SLUYS
& ADOLPHSON LLP
755 Main Street, P.O. Box 224
Monroe, CT 06468-0224

Respectfully submitted,



James A. Retter
Registration No. 41,266

tel: (203) 261-1234
Cust. No.: 004955